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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,072	05/31/2006	Gerhard Hamprecht	3165-144	2092
6449 7590 07/10/2008 ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005				
EXAMINER MURRAY, JEFFREY H				
ART UNIT		PAPER NUMBER		
1624				
NOTIFICATION DATE		DELIVERY MODE		
07/10/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/581,072

Applicant(s)

HAMPRECHT ET AL.

Examiner

JEFFREY H. MURRAY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 is/are allowed.
- 6) ☒ Claim(s) 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to an office action filed on March 12, 2008. There are sixteen claims pending and sixteen claims under consideration. This is the second action on the merits. The present invention is directed to a process for preparing 3-phenyl(thio)uracils and 3-phenyldithiouracils of the formula I as seen in the specification.

Status of Objections

2. The specification was objected to for not containing proper heading titles. The objection against the specification is hereby withdrawn in view of the applicant's amendments to the specification.

3. Claim 8 was objected to for being a substantial duplicate of claim 1. The objection against claim 8 is hereby withdrawn in view of the applicant's arguments showing claim 8 is distinct.

Status of Rejections

4. Claims 1-16 are rejected under 35 U.S.C. 103, as failing to comply with the nonobviousness requirement. The rejection against claims 1-16 is hereby withdrawn in view of the applicant's arguments showing the differences between the prior art and the current application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

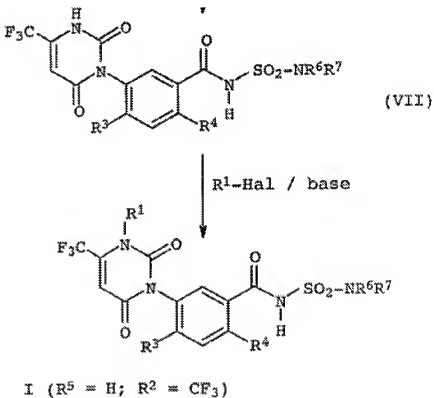
New Rejections**Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claim 16 is rejected under 35 U.S.C. 102(a) as being anticipated by Zagar, et. al., WO 2003024221. The prior art teaches the following step on page 52 of the document:



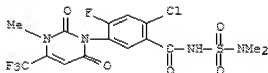
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Where the free-amine uracil is reacted with a R^1 -Hal where R^1 is preferably methyl and Hal is a halogen (a nucleophilically displaceable leaving group) to methylate the uracil nitrogen.

The text on page 53 reads:

The alkylation of the aniline compound VII at the free uracil nitrogen is achieved in a manner known per se for uracils by reacting VII with an alkylating agent, preferably a methylating agent, for example a methyl halide, preferably methyl iodide, or dimethyl sulfate. The reaction is preferably carried out in the presence of a base, for example an alkali metal hydroxide or alkaline earth metal hydroxide, an alkali metal bicarbonate or, in particular, in the presence of an alkali metal carbonate. The alkylating agent is preferably employed in excess, based on VII. Suitable solvents are, in principle, all inert organic solvents, for example C_1 - C_4 -alcohols, haloalkyl compounds such as dichloromethane, ethers such as tetrahydrofuran or dioxane and, preferably, polar aprotic solvents such as dimethylformamide or dimethyl sulfoxide.

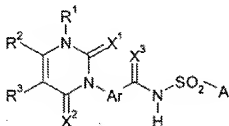
The prior art document also shows the synthesis of the following compound which reads on the current application:



Thus the prior art document shows a process for preparing a 3-phenyluracil of formula I.

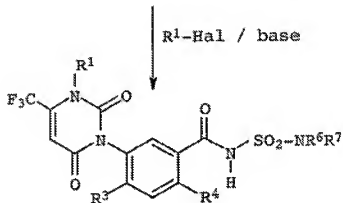
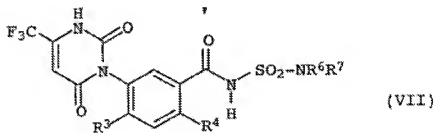
Claim Rejections - 35 USC § 103

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zagar, et. al., (WO 2003024221) in view *Graver Tank & Mfg. Co. v. The Linde Air Products Co.*, (USSC 1950) 339 US 695, 85 USPQ 328. The current application relates to a process for preparing 3-phenyl(thio)uracils and 3-phenyldithiouracils of the general formula I:



comprising the reaction of an unsubstituted amino(thio)uracil (where R¹ is H) with an alkylating agent to form an alkylated (thio)uracil (where R¹ is alkyl).

The prior art teaches the alkylation of an unsubstituted uracil (where R¹ is H) with an alkylating agent to form an alkylated uracil (where R¹ is alkyl). The scheme is seen on the next page and found on page 53 of the prior art document:



I ($R^5 = \text{H}$; $R^2 = \text{CF}_3$)

The published reference Zagar, et. al. is identical to the current application in regards to the alkylation step but for one term. While the prior art is a uracil which reads on the current application (see the 102(a) rejection), the prior art does not teach a "thiouracil" or where X^1 , X^2 , or X^3 can be a sulfur instead of an oxygen.

The court decision of *Graver Tank* teaches that *the important factor in determining a test for equivalency in a prior art document is whether a person who is reasonably skilled in the art would recognize the equivalency in the compound or composition*. In *Ex parte Wiseman* (POBA 1953) 98 USPQ 277, a difluorinated compound was held unpatentable over the prior art dichloro compound on the basis of analogical reasoning. A compound need not be an adjacent homolog or position isomer of a prior art compound in order to be susceptible to a rejection based on structural

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obviousness; the name used to designate the structural relationship between compounds is not controlling, it is the closeness of that relationship. *In re Payne et al.* (CCPA 1979) 606 F2d 303, 203 USPQ 245. When chemical compounds have "very close" structural similarities and similar utilities, without more, a *prima fade* case of obviousness may be made. *In re Grabiak* (CAFC 1985) 769 F2d 729, 226 USPQ 870.

Relating the information from *Graver Tank* to the Zagar et. al. publication, it would have been obvious for a person of ordinary skill in the art to attempt the same process and replace the carbonyl groups of a uracil with a thione derivative to synthesize a thiouracil or dithiouracil in the same position. The actual process involved in this reaction is identical, and the residue groups of the prior art and the application are so similar that one skilled in the art would expect that any differences would be inconsequential in the reaction which takes place. That is to say, both Zagar et. al. and the current application take a uracil and react it with an alkylating agent to synthesize an alkylated uracil. The difference between sulfur and oxygen are well known in the chemical arts to have similar properties. For example, both elements fall within the same family in the periodic table of the chemical elements. As atoms, both oxygen and sulfur contain the same valence number, similar chemical properties and numerous chemical literature has suggested the attempted use of a thiol over an alcohol or a thiourea in place of a urea and vice versa. Due to the numerous chemical property similarities of oxygen and sulfur, this substitution would be attempted by anyone skilled in the art.

It would have been obvious to one skilled in the arts at the time of the invention to be motivated to attempt the same process with a thiouracil or dithiouracil. Zagar et. al. shows a methylated uracil being synthesized by way of reacting an alkylating agent (MeI), and *Graver Tank* shows that X_1 , X_2 , and X_3 may be a C(=O) or C(=S) and that any of these derivatives would be chemical equivalents, and thus would not alter or affect the claimed process in any way. Due to the numerous chemical property similarities of sulfur and oxygen, this substitution would be attempted by anyone skilled in the art who was attempting to make thiouracils or dithiouracils. The claims above are obvious because the substitution of one known element for another (sulfur for oxygen) would have yielded predictable results in the process to one of ordinary skill in the art at the time of the invention.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Allowable Subject Matter

8. Claims 1-15 are allowed. Claims 1-15 are free of the prior art. The closest prior art is Carlsen, et. al. WO 2001083459, which teaches the same exact compounds as the current application, but fails to teach the same process. The prior art does not use an aryl isocyanate to react with the enamine to form the final compound.

Conclusion

9. Claim 16 is rejected.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey H. Murray whose telephone number is (571) 272-9023. The examiner can normally be reached on Mon-Thurs. 7:30-6pm EST.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson can be reached at 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a US PTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey H Murray/
Examiner, Art Unit 1624

James O. Wilson
Supervisory Patent Examiner, Art Unit 1624